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APPROVAL OF UNDP ASSISTANCE TO A PROJECT OF
CHINA

INDIANA UNIVERSITY
DEPT.

IPF:(1992-96) $176 600 000
(CPR/91/273) - Improving the Design and Construction Technology of Energy Sources Transportation Vessels

Date of approval by the AC:[1]	14 October 1992
Expected duration:	Four years
Proposed executing agency:	Government (China International Centre for Economic and Technical Exchanges (CICETE) with UNIDO as cocperating agency)
Government implementing agency:	China State Shipbuilding Corporation (CSSC)
Proposed UNDP contribution:	$1 500 000 Source of funds: IPF
Government cost sharing:	$ 610 000
Total UNDP budget:	$2 110 000

Project background

Adequate production and supply of energy is a critical developmental issues facing China during its current period of rapid economic growth. In recent years, despite large investment programmes in the energy sector and increased emphasis on energy efficiency and conservation, energy demand has consistently outstripped supply. In some regions of the country, particularly the South and the Southeast, industrial plants are underutilized by 20-30 percent because of energy shortages. While the production of coal, oil and gas falls short of demand, two key factors seriously aggravate the problem of energy supply in China. Firstly, the vast geographical distance between the major energy production bases which are concentrated mainly in the West, North and Northeast China, and the main end users, the industrial belt in South and southeast China. Secondly, China's energy resource profile which is highly skewed with 75 percent of its primary energy requirements met by coal. Furthermore, only 27 percent of coal production is used for electricity generation with the rest being used for direct combustion in boilers and on industrial feedstock.

China's annual coal production is estimated at 1.1 billion tons of which 680 million tons are transported over long distances, mostly by train. It is estimated that coal accounts for more than one-third of total cargo hauled by train, resulting in severe economic and environmental consequences. At present, less than 100 million tons of coal (14 percent) is transported by ship. In considering various strategies for improving energy sources supply, the shift from train to waterway transport of coal is a particularly attractive option because of its clear direct and indirect economic, environmental and social benefits. However, a critical constraint in this regard is the very shallow water depths of harbours in China which limit the size of ships that can dock to load and offload.

[1] This Fact Sheet reflects the status of the project/revision at the time it was approved by the Action Committee; modifications to the project/revision may have occurred subsequently.

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The Government's long-term masterplan for increased waterway transport of coal foresees the construction, by year 2,000, of 34 shallow draft carriers of 35,000 DWT, one shallow draft carrier each of 50-60,000 DWT and 100,000 DWT, and three self-unloading vessel of 27,000 DWT each.

To this end, China has constructed two shallow draft carriers of 35,000 DWT. However, their performance has been less than satisfactory because of problems in ship design and construction techniques thereby affecting speed, maneuverability and ship behaviour, particularly in rough weather. To address the problem, the Government has opted for a capacity-building approach for the following reasons: (1) the Government's long-term plan is to build a fleet of shallow draft vessels as indicated above; (2) ship design is very specific to local water conditions, hence any shallow draft vessel design obtained through licensing would have to be adapted and China will have to develop national capability; (3) enhancement of the economic efficiency of waterway transportation of energy sources the capacity of shallow-draft vessels will, in the longer-term, have to be upgraded to 50,000 DWT and above; and (4) the Government also plans to adapt these vessels for carrying fuel which supports the capacity-building approach. UNDP technical assistance has therefore been requested because of its comparative advantage in providing a package of technical services including extensive training for related institutions.

Description of project

The overall objective of the project is to upgrade the technical capacity and know-how of three main agencies designated as the national centres for research and development of energy source vessels to a point where their combined efforts will result in the construction of technically advanced, efficient shallow draft coal carriers. The project is primarily human resources oriented and will build on a substantial store of expertise by leveraging access to specialized know-how and techniques in a cost-effective manner. The upgrading of capabilities will be focussed in three areas: (1) improving design capabilities and reducing design time; (2) more sophisticated and accurate testing of model designs; and (3) more efficient fabrication methods.

The China State Shipbuilding Corporation (CSSC) will be responsible for overall coordination and implementation of the project. To ensure a common design and technical base, CSSC has designated three Institutes for specific tasks as follows:
(1) Shanghai Merchant Ship Design and Research Institute for re-designing of shallow draft vessels and self-unloading vessels; (2) China Ship Scientific Research Centre for database network development and experimental testing of vessels; and (3) Shipbuilding Technology Research Institute for research and adaptation of shipbuilding techniques.

A comprehensive management and coordination mechanism will be put in place to ensure effective integration of various project activities and coordination between energy suppliers, energy vessel producers and vessel users.

Inputs

UNDP will provide 19 work-months of international consultancies and 237 work-months of training; a subcontract for specialized design software; and critical testing and research equipment under government costsharing.

Financial data

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Personnel	300 000
Subcontract	120 000
Training	1 059 000
Equipment	610 000
Miscellaneous	21 000
Total	2 110 000